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TE-2

CNL Assignment-3

Q.1. Write note on flow control and error control.

→ **Error Control:**

1. The next problem to be dealt with is to make sure that all frames are eventually delivered to network layer at destination, in proper order.
2. Generally receiver sends back some feedback (+ve/-ve) to convey info about whether it received frame or not.
3. A positive acknowledgement (ACK) indicates successfull and error free delivery whereas negative acknowledgment (NAK) means something gone wrong That frame is retransmitted.
4. Due to noise frame may vanish completely. So, error control in data link layer is process of detecting and retransmitting data which has been lost or corrupted during transmission of data.
5. Any reliable system must have a ~~transmission~~ mechanism for detecting and correcting such errors.
   eg: Sliding window ARQ

Flow Control:

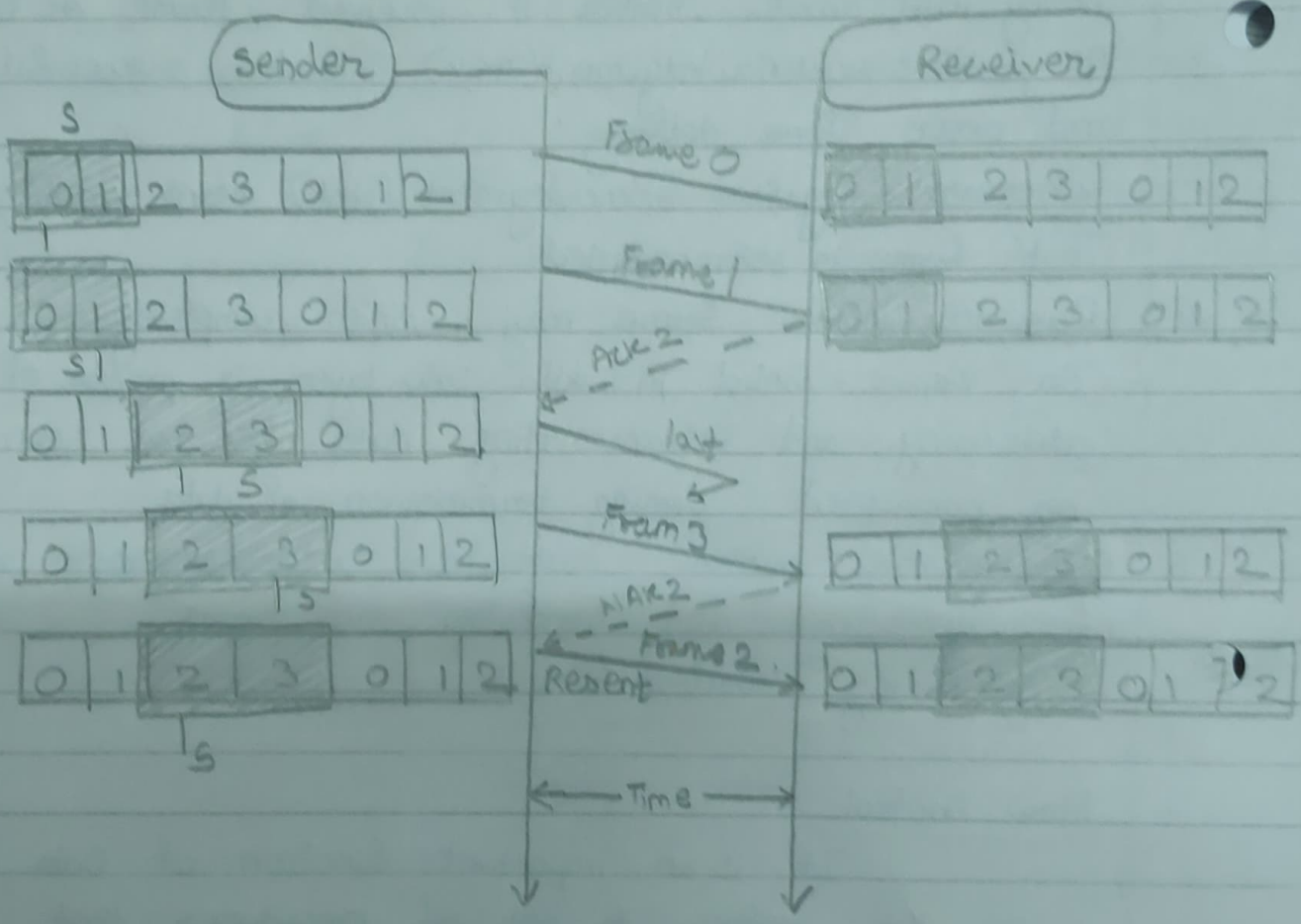
It is an important function of Data Link Layer. It refers to set of procedures that tells the sender how much data it can transmit before waiting for acknowledgement from receiver.
eg: Stop & Wait Protocol

Q.2. What is Sliding window Protocol?

→ • A sliding window protocol is a feature of packet-based data transmission protocols.

• To address this, sliding window protocols allow a selected number of packets, the window, to be sent without having to wait for an ACK.

• Each packet receives a sequence number, and the ACK's send back that number.



Q.3. Explain in brief Slective repeat and Go-back N.

→ • Selective Repeat ARQ:

In this method only specified damaged or lost frame is retransmitted.

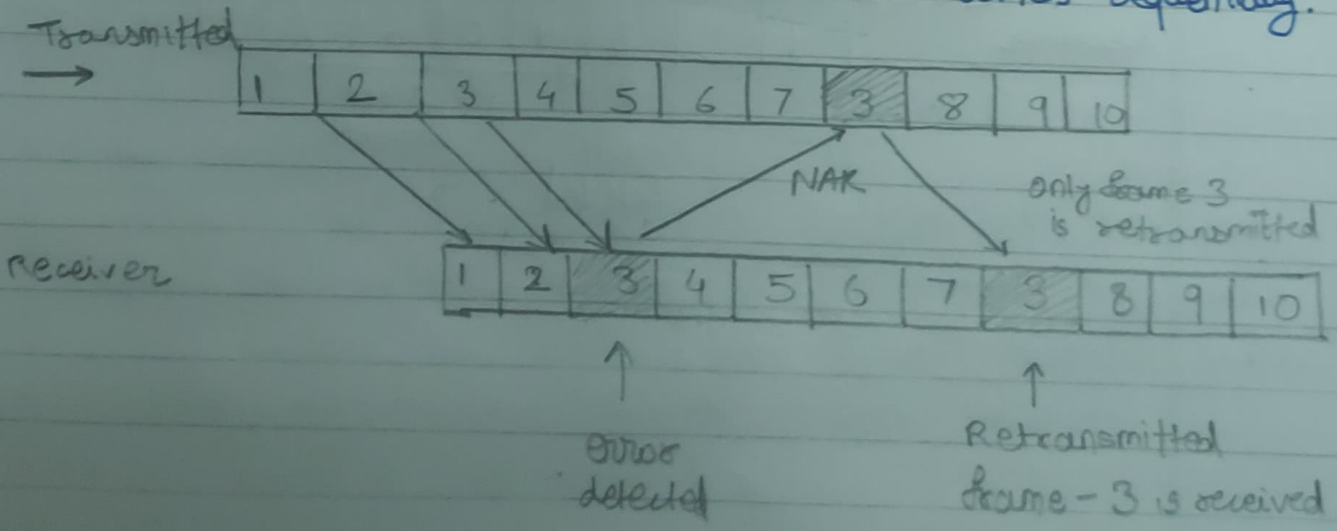
1. In this system the transmitter does not wait for Ack signal for the transmission of next frame. It transmits the frames continuosly till it receives the 'NAK' signal from receiver.

2. The receiver sends NAK signal back to the transmitter as soon as it detects an error in received frame.

3. On reception of NAK signal, the transmitter will only retransmit frame-3 and then continue with sequence 8, 9, ... as in fig.

4. Frames 4, 5, 6 & 7 received which do not contain any error are not discarded by receiver. The retransmitted frames are received within regular frames.

∴ Receiver will have to maintain frames sequentially.



- Go-back-n-ARQ:

1. In Go-back-n ARQ the sender does not wait for Ack signal for the transmission of next frame. It transmits the frames continuosly as long as it does not receive the 'NAK' signal. NAK is negative acknowledgement signal sent by receiver to transmitter.
2. When receiver detects error in third frame, the receiver sends a NAK signal back to sender.
3. But this signal takes some time to reach transmitter. By that time transmitter has transmitted upto frame 7. On Reception of NAK signal, transmitter will retransmit all frames from 3 onwards.
4. The receiver discards all the frames it has received after 3 i.e 3 to 7. It will then receive all frames that are retransmitted by transmitter.